

## Not all EPRO Reverse Osmosis(RO) System are the same



**AIR & WATER QUALITY INC.**

160 US Route 1 • Freeport, ME 04032  
388 Bangor Road • Ellsworth, Me 04605  
Tel # (800)698-9655 • awqinc.com

We are often faced with a sales situation where we are told that our competitor's proposed RO system is the same as ours. This is definitely not true! So let's take a look at this claim.

### History

We have been installing whole house reverse osmosis systems for close to a quarter of a century. We have hundreds of whole house RO systems in the field. They are installed for a number of diverse needs. The diversity ranges from RO systems that treat record breaking concentrations of arsenic and uranium to desalination systems that treat water directly from the ocean.

Crane Environmental produces a line of RO systems they have named their EPRO series. Crane produces these standard units along with units that are custom made to the specifications provided by the customer.

Our many years of experience have allowed us to design RO systems that are very economical to operate and to service. Crane uses our design criteria to produce our version of an EPRO.

### What makes ours different?

- All of our units come with a water quality meter. This lets the user know the system is providing safe clean water.
- All of our units come with a recycle circuit<sup>1</sup>. This allows us to design systems that reuse water to reduce waste while maintaining the critical necessary flows for extended membrane life.
- Long ago, we had the plumbing system redesigned to allow us to control the amount of waste water with a single valve. This provides two benefits –
  - Typically, systems force the user to juggle the operation of two valves to accomplish this same function. Our design allows a quicker easier adjustment that can be accomplished by anyone, even the homeowner.
  - Our design allows for the ability to run the RO with very little waste water when compared to a standard configuration.
- All of our systems come with three pressure gauges. Monitoring these gauges during start up and

<sup>1</sup>Because of special requirements for seawater systems, they do not use a recycle circuit.

operation provides us with important information on not only water quality changes, but also system maintenance and efficiency.

- Our units come with both permeate (treated) water and reject (waste) water flow meters. This allows us to make sure the proper operating conditions are maintained for extended membrane life.
- We have eliminated the flow switch on the standard units. Because of the other plumbing features we have incorporated into our systems, we have eliminated the need for its function.
- We have had the electronic control board programmed to meet our specific requirements. We can use this same board on all of our systems. This same board provides us with many options that can be field set. These boards allow the following -
  - All of our systems come with a test mode function that allows the unit to be started at any time with the simple push of a button. All RO units need to be monitored from time to time and many of the readings need to be taken while the unit is running. The test mode feature allows the technician or homeowner to start the unit without having to waste water by running treated water from storage until the unit comes on.
  - Each unit has a low pressure shut down function that does not allow the unit to restart on its own after a low pressure situation. Instead, it shuts the unit down and signals the operator the reason the unit has shut down. This prevents catastrophic failures from things that can be easily diagnosed and fixed.
  - All of our units come with a pretreatment lockout function that prevents the unit from operating with untreated water during the regeneration process of the pretreatment equipment.
  - A permeate flush relay is installed on all of our units with the option to activate this feature when necessary. A permeate flush option is required on all seawater systems and is used from time to time on our standard systems.
  - The display panel of the control box shows the condition of all the control board functions with LED's and digital readouts for fast easy diagnosing of any problems.

### What else needs to be considered?

The difference in our systems does not stop at the design of the RO itself. We provide pretreatment options that allow us to greatly extend membrane life well

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beyond the typical industry standard of two to three years. The membrane and its change out is one of the more costly maintenance issues for any reverse osmosis unit. With a properly maintained pretreatment system, we see average membrane lives of five to seven years.

Our pretreatment also allows us to operate our standard RO systems at a 50% recovery rate<sup>2</sup>. A 50% recovery rate means the unit produces a gallon of treated water for ever gallon it sends to waste. It is not unusual to have standard units run at a recovery rate of only 25%. At a 25% recovery rate, the unit will produce one gallon of treated water for every three gallons it sends to waste. We design all of our units to the 50% standard where possible. This reduces the cost of operating the well pump, decreases the stress on the well and reduces problems with waste water disposal.

All of our storage tanks are designed with filtration on the air that must be let in and out of the tank when it is filled and emptied. Most storage tanks covers have a vent that will allow insects and debris to enter the tanks. We take special care to be sure the standard storage tank cover vent is sealed. The filter we use is designed to remove particles as small as 5 microns.

As a safety precaution, the level controls in the storage tank are low voltage. We also provide many back up options like low water alarms and overflow alarms. We can even put a dialer on the system to call you if there is a problem.

All of our repressurization pumps are designed to meet the demands of the house. One size does not fit all. Through interviewing the customer and evaluating any existing water handling equipment, we will choose the repressurization pump that will meet the customer's needs.

### **Conclusion**

We provide the most efficient, safe and user friendly systems available. Each system is custom designed to meet the challenges of the existing water and needs of the customer.

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<sup>2</sup>Seawater systems require lower recovery rates. Typically the recovery rate for these systems is 25% -30%.

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